



MODEL **MO-2404**  
1-NEEDLE OVEREDGER

MODEL **MO-2414**  
2-NEEDLE OVEREDGER

MODEL **MO-2416**  
SAFETY STITCHER

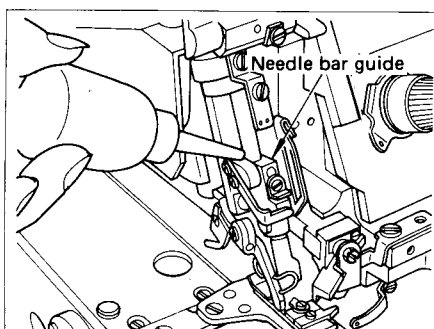
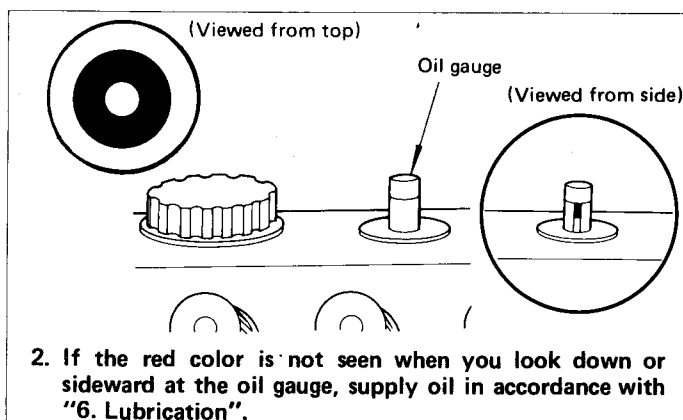
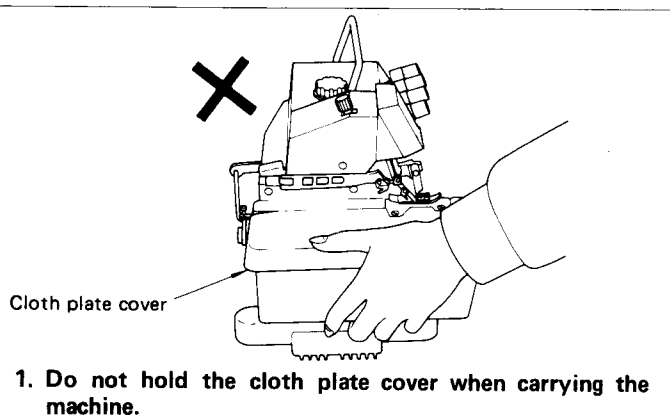
# INSTRUCTION BOOK

Congratulations on your purchase of JUKI MO-2400 Series machines.

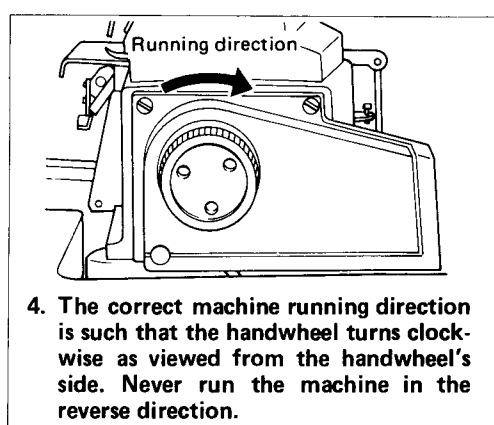
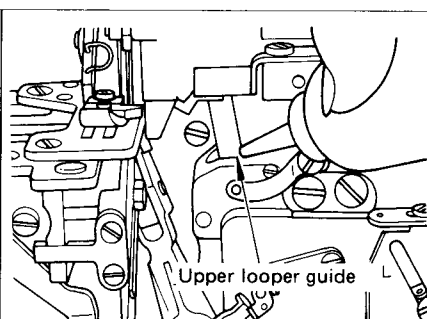
Please read this Instruction Book carefully before using these units in order to get the most out of them and to enjoy using them for a long time.

For the first one month or so, operate the machine at about 80% speed of its max. sewing speed.

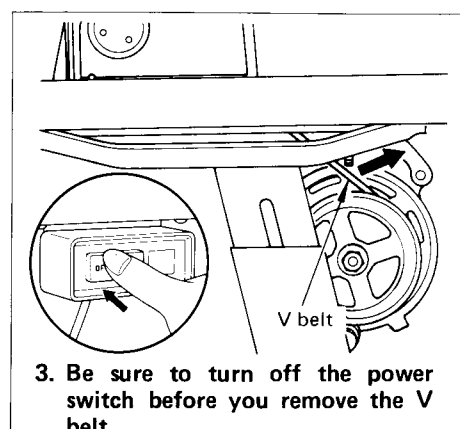
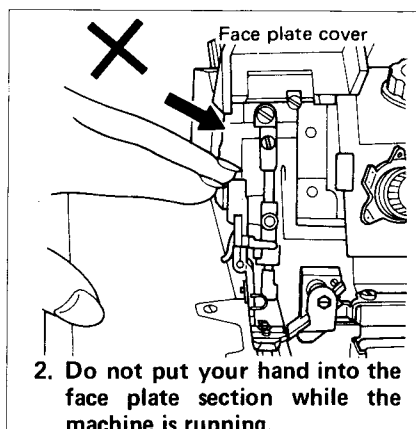
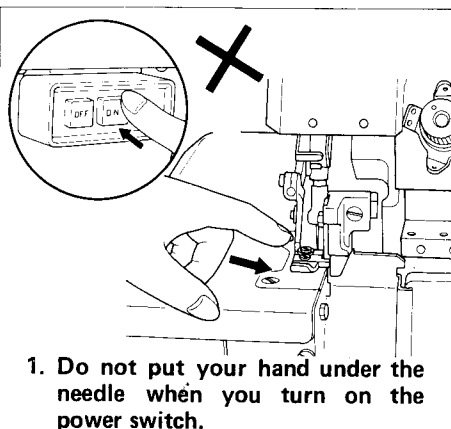
## BEFORE OPERATION



3. Apply two or three drops of oil to the needle bar guide and upper looper guide when operating the machine for the first time after setup or after a long period of disuse.



## CAUTIONS IN OPERATION

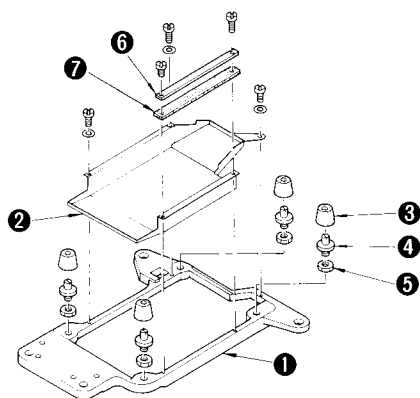


4. Never bring your fingers or hair close to, or place anything on the handwheel, V-belt, bobbin winder wheel or motor during operation. It may lead to serious personal injuries.

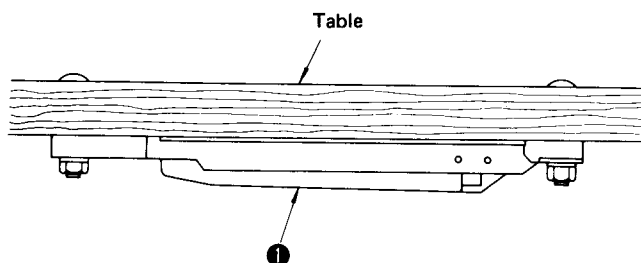
5. If your machine is provided with a belt cover, finger guard and eye guard, never operate your machine with any of them removed.

# 1. INSTALLING THE FRAME SUPPORT PLATE

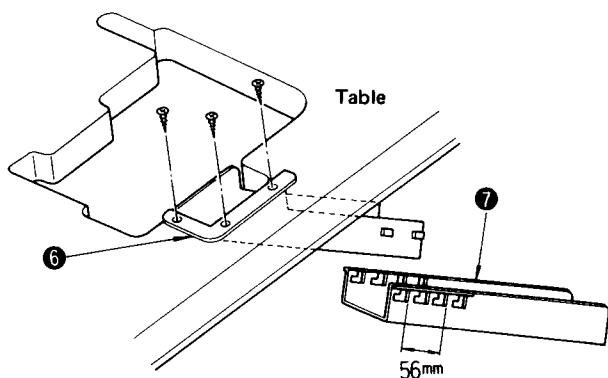
## ★ Semi-sunken type



1. Attach blower case ②, rubber cushion ③, rubber cushion seat ④, nut ⑤, case presser plate ⑥, and case sponge ⑦ to frame support plate ①.

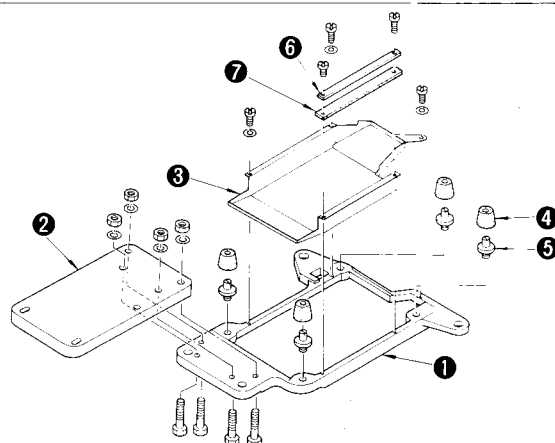


2. Install frame support plate ① directly to the table.

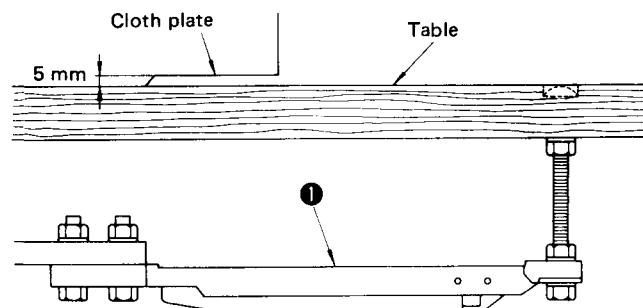


3. Install upper waste chute ⑥ to the left on the table, and then attach lower waste chute ⑦ to the upper waste chute. The installation of the chutes can be adjusted within a length of 56 mm.

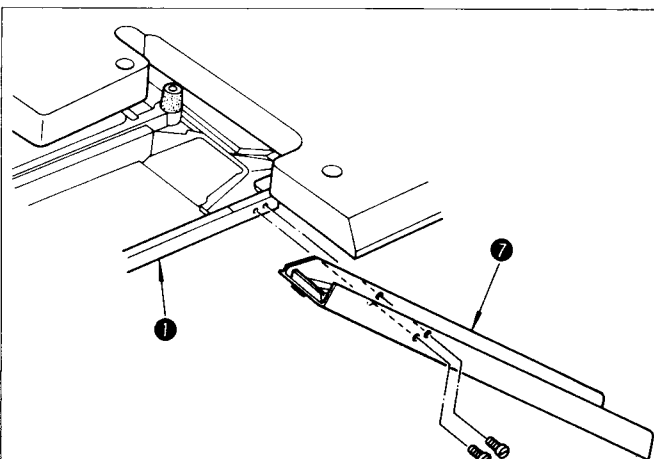
## ★ Fully-sunken type



1. Attach frame support plate joint ②, blower case ③, rubber cushion ④, rubber cushion seat ⑤, case presser plate ⑥, and case sponge ⑦ to frame support plate ①.



2. Install frame support plate ① so that the cloth plate is 5 mm higher than the surface of the machine table.



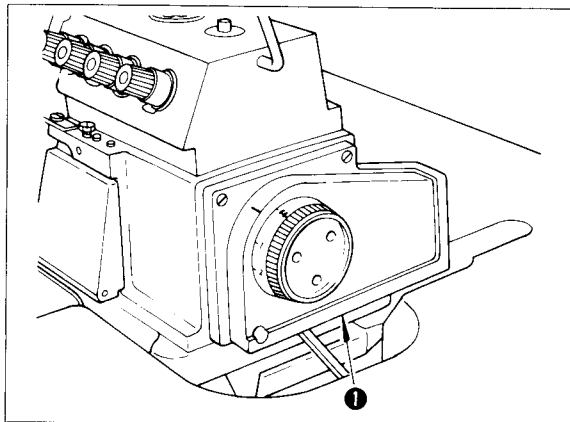
3. Attach waste chute ⑦ to frame support plate ①.

## 2. MOTOR PULLEY AND V BELT

| Sewing speed<br>(s.p.m.) | 50 Hz                              |                     |                      | 60 Hz                              |                     |                      |
|--------------------------|------------------------------------|---------------------|----------------------|------------------------------------|---------------------|----------------------|
|                          | Motor pulley<br>Outer dia.<br>(mm) | V belt (inch)       |                      | Motor pulley<br>Outer dia.<br>(mm) | (V belt (inch))     |                      |
|                          |                                    | Semi-sunken<br>type | Fully-sunken<br>type |                                    | Semi-sunken<br>type | Fully-sunken<br>type |
| 6500                     | 120.5                              | 38                  | 32                   | 100.5                              | 36                  | 32                   |
| 6000                     | 110.5                              | 36                  | 32                   | 95.5                               | 35                  | 30                   |
| 5500                     | 100.5                              | 36                  | 32                   | 85.5                               | 35                  | 30                   |
| 5000                     | 90.5                               | 35                  | 30                   | 80.5                               | 34                  | 30                   |
| 4500                     | 85.5                               | 35                  | 30                   | 70.5                               | 34                  | 30                   |

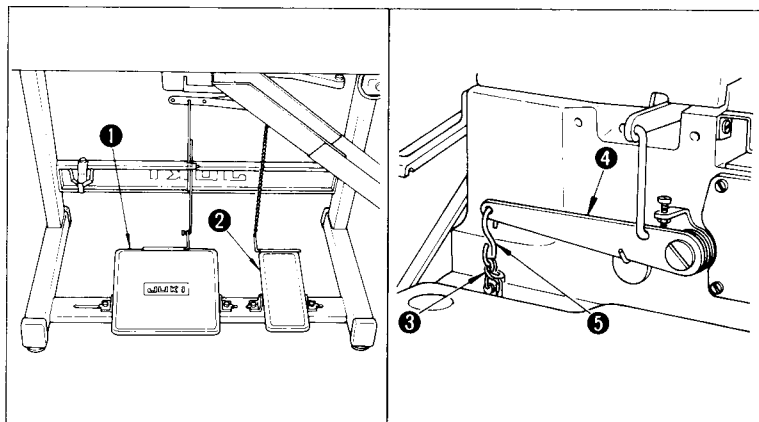
1. Use a 400W (1/2 HP) clutch motor.
2. Use a M type V belt.
3. The table on the left shows the sewing speeds obtained by the use of motor pulleys with different diameters and V belts with different lengths.
4. Note that the effective diameter of the machine head pulley has been changed to 50 mm.

## 3. ATTACHING THE BELT COVER



Install belt cover ① to the machine head.

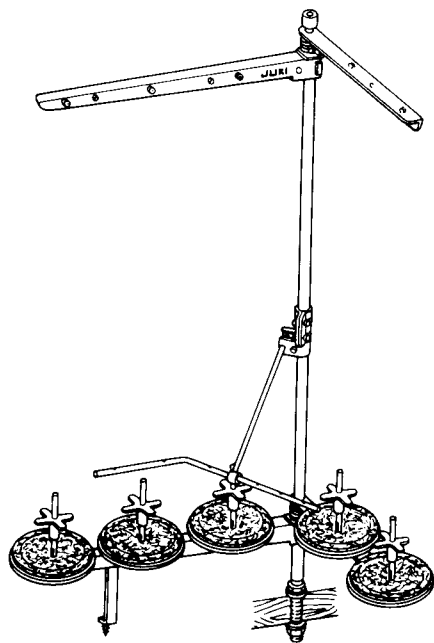
## 4. INSTALLING THE PEDALS



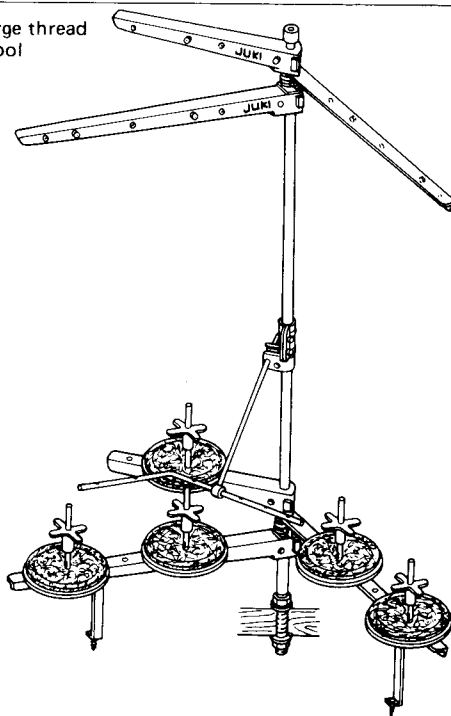
1. Install starting pedal ① on the left and presser lifter pedal ② on the right as seen from the operator.
2. Use an S-shaped hook ⑤ to connect the chain ③ of the presser lifter pedal to presser lifting lever ④.

## 5. SETTING UP THE THREAD STAND

Standard thread spool

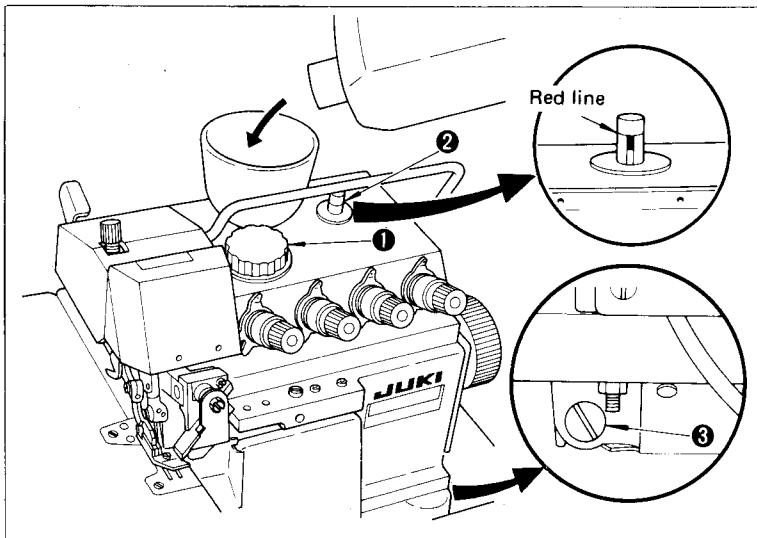


Large thread spool

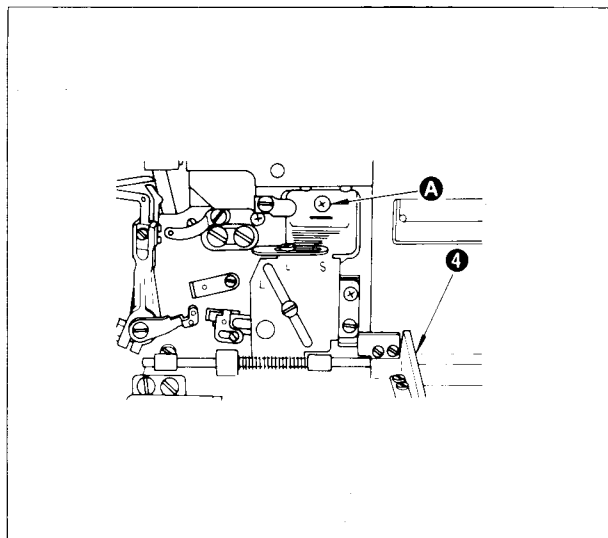


Assemble the thread stand components as illustrated and set it up on the machine table. (The figure on the left shows an assembled 5-thread stand for Model MO-2416.)

## 6. LUBRICATION



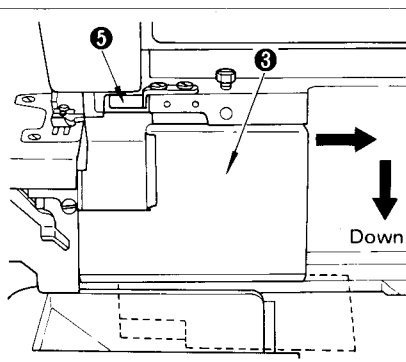
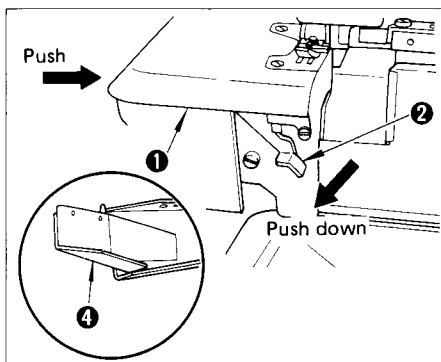
1. Remove oil cap ①.
2. Pour JUKI New Defrix Oil No.2 into the oil reservoir.
3. Stop supplying the oil when the red color has fully spread as you look down at oil gauge ② or when the red color has reached the red line as you look sideways at the oil gauge.
4. Remove oil drain cap ③ when drawing the oil reservoir.



### ★ Lubricating the needle color

1. Open looper cover ④, fill the needle cooler with silicone oil through A, using the furnished oil feeder.
2. Infiltrate silicone oil also into the oil felt if the machine is started immediately after lubricating the needle cooler.

## 7. OPENING/CLOSING THE COVER



### ★ Cloth plate cover

To open cloth plate cover ①, push down cloth plate opening lever ②. To close the cover, push it in the arrowed direction.

### ★ Looper cover

To open looper cover ③, move the looper cover in the arrowed direction until it will go back no farther, then bring it down. Raise the looper cover when closing it.

### ★ Chip guard cover(upper)

If the chip guard cover often interferes with the upper looper, install chip guard cover upper ⑤.

**(Caution)**  
For a fully-sunken table type, make sure to lower waste chute opening ④ before opening the looper cover.

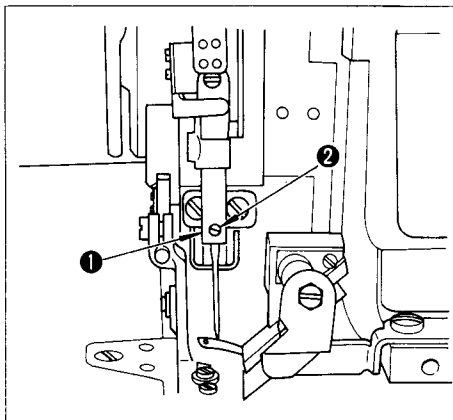
## 8. ATTACHING A NEEDLE

The standard needle is DC x 27 #11. A needle of DC x 1 can be also used, but it sometimes requires adjustment of the clearance between the looper and needle.

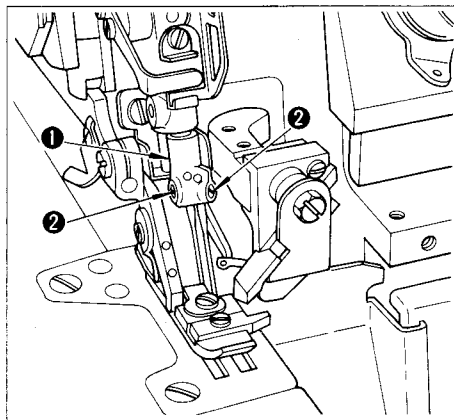
It is advisable to use a needle of DC x 27 for strict stitch performance.

1. Bring needle clamp ① to the highest position.
2. Loosen needle clamp screw ②, and fully insert the needle into the needle clamp hole with the needle recess facing backwards as viewed from the operator's side.
3. Tighten the needle clamp screw.

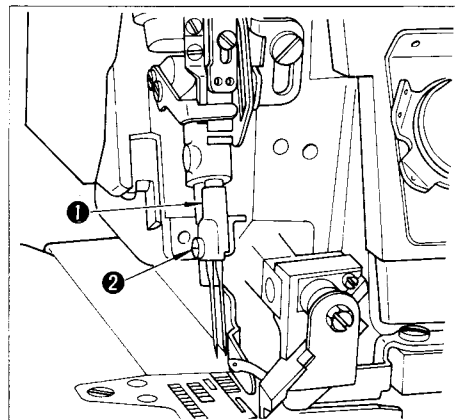
MO-2404



MO-2414



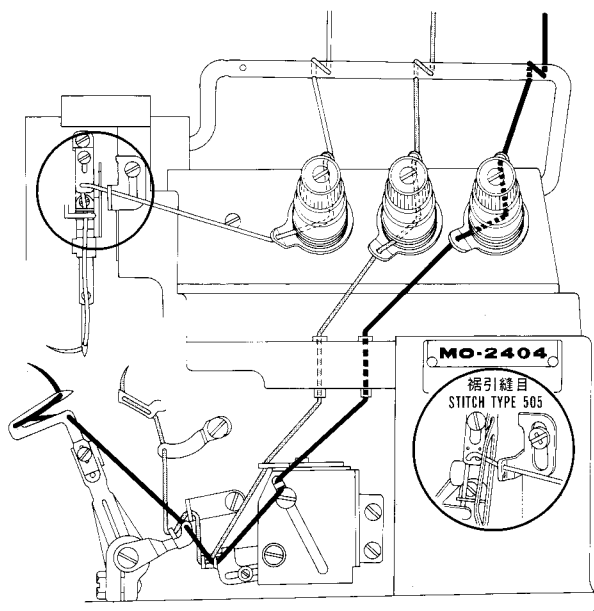
MO-2416



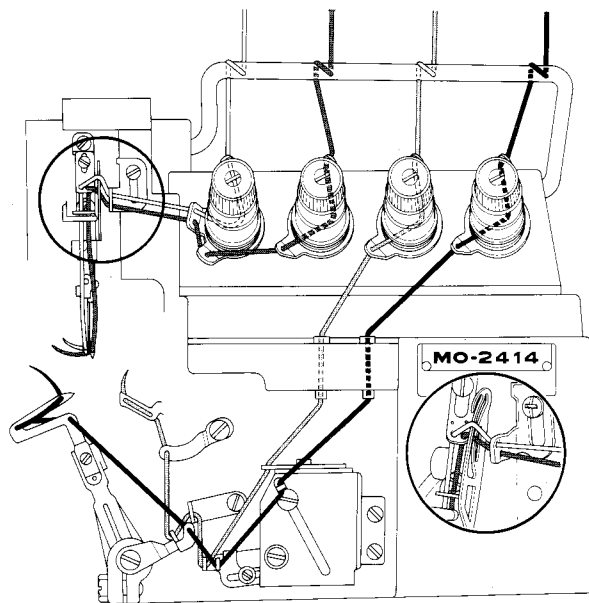
## 9. THREADING THE MACHINE

Thread the machine according to the threading chart given below. (The same chart is on the inside of the looper cover.)

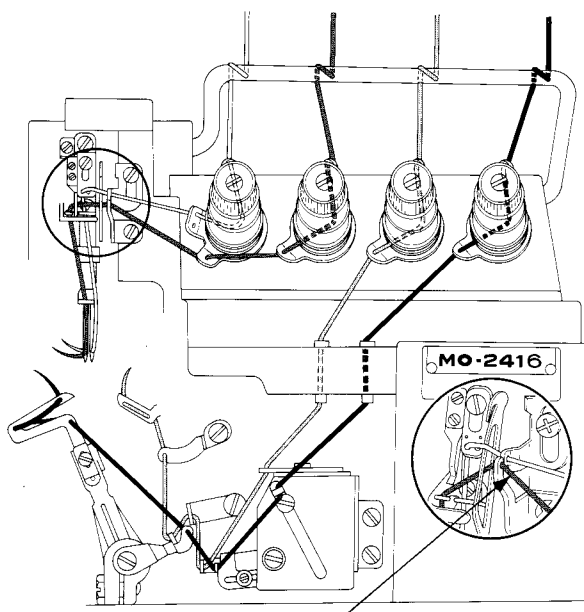
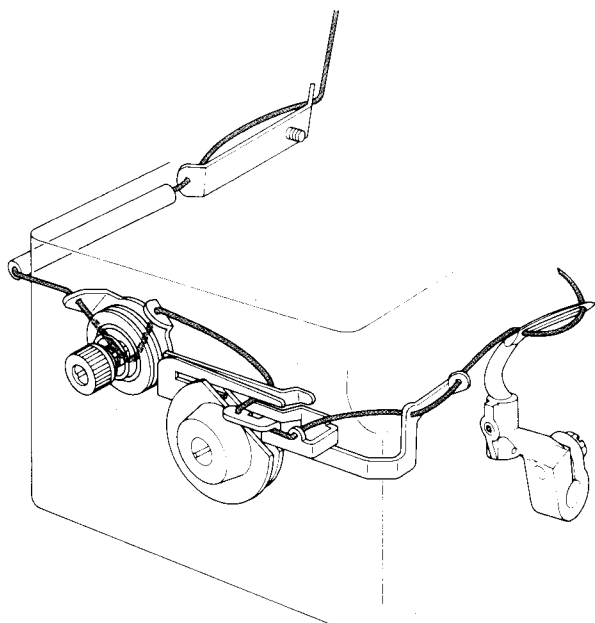
MO-2404



MO-2414

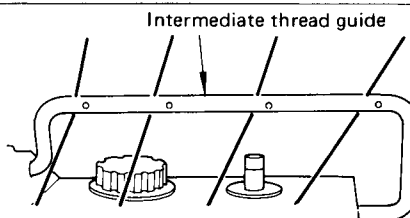


MO-2416



**Important :**  
Be sure to pass the double-chain stitch needle thread through the needle thread take-up.  
(The outer thread is the overlock needle thread.)

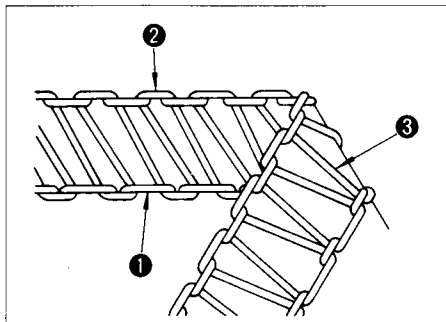
**(Caution)**  
When using an untwisted thread such as wooly nylon thread or weak thread, do not wind it round the intermediate thread guide.



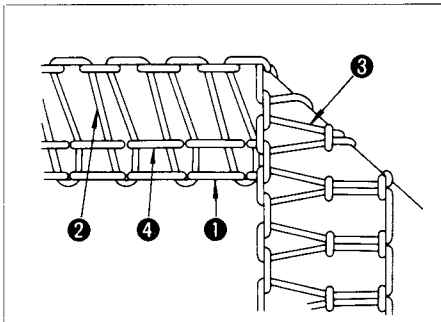
## 10. THREAD TENSION

Using the thread tension nut, adjust to an optimum thread tension according to your sewing conditions such as type of materials, type and size of thread, etc.

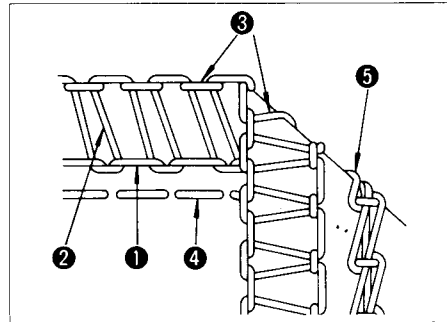
MO-2404



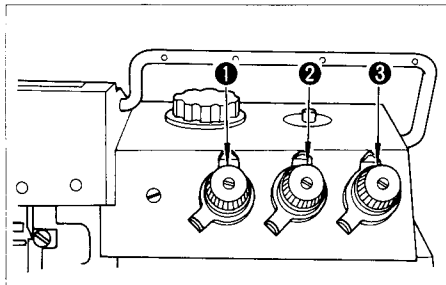
MO-2414



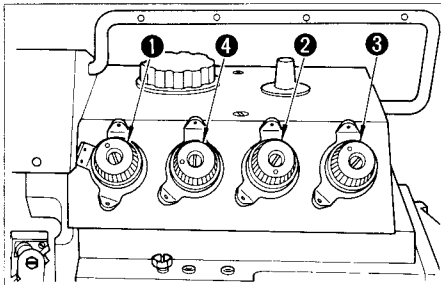
MO-2416



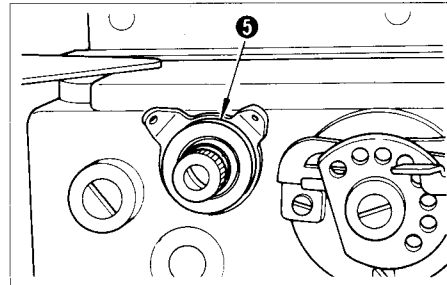
MO-2404



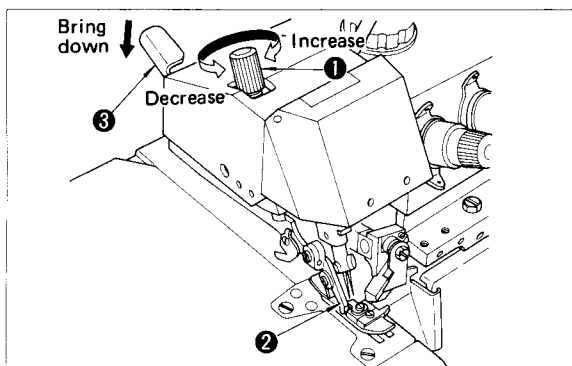
MO-2414, MO-2416



MO-2416



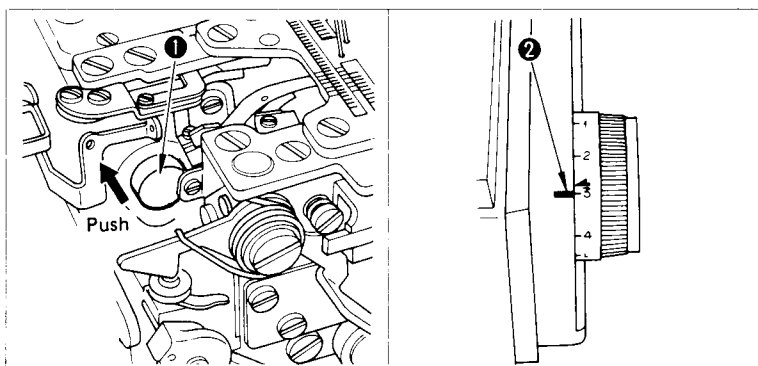
## 11. PRESSER FOOT PRESSURE AND LIFTER



Adjust the pressure of the presser foot by turning presser foot adjust screw ①. When the adjust screw is turned clockwise, the pressure increases, while the pressure decreases when the screw is turned counter-clockwise.

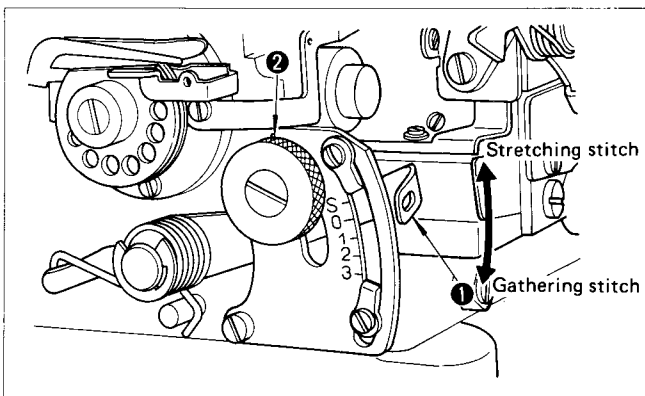
When you turn presser foot assembly ② side-ways, bring down presser lifting lever ③. Whenever the presser foot is returned to its original position, be sure to bring up the presser lifting lever.

## 12. ADJUSTING THE STITCH LENGTH



1. Slowly turn the handwheel as you keep depressing pushbutton ①, and you will find a point at which the pushbutton goes in farther.
2. With the above condition maintained, align a desired dial on the handwheel with white mark ② on the belt cover.
3. Reset the pushbutton after setting the dial.

## 13. DIFFERENTIAL FEED MECHANISM

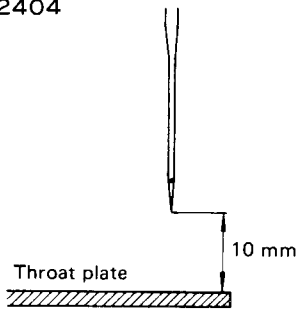


1. Loosen differential feed lock nut ②. Turn lever ① up for stretching stitch or down for gathering stitch.
2. Position "S" is for stretching stitch of a ratio of 1:0.7 and position "0" provides a differential feed ratio of 1:1.
3. Gathering stitch can be made up to a differential feed ratio of 1:2 (possible up to 1:4 by adjusting the internal mechanism). The divisions beyond "0" may be used as a measure.

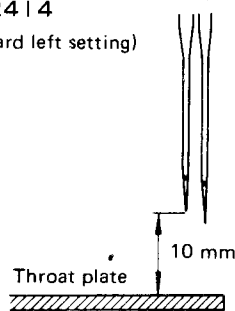
## 14. HEIGHT OF NEEDLE

When the needle bar is at the highest point of its stroke, the pointed end of the overedging needle should be 10 mm above the throat plate surface.

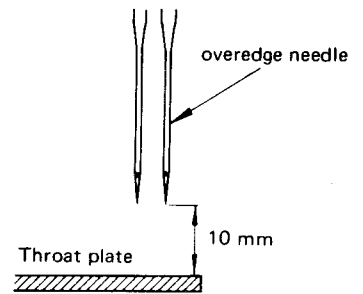
MO-2404



MO-2414  
(Standard left setting)

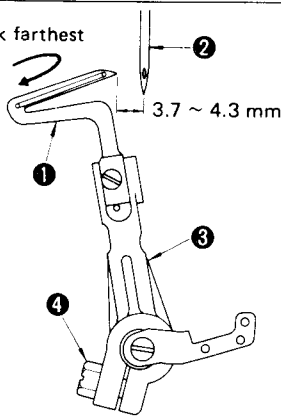


MO-2416

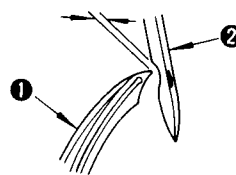


## 15. SETTING THE LOOPERS

Go back farthest



0.05 ~ 0.1 mm



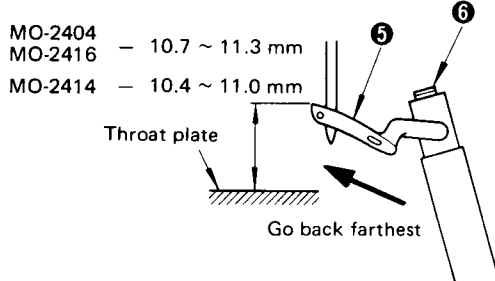
### ★ Lower looper

1. When lower looper ① has gone back farthest, it should be distanced 3.7 to 4.3 mm from overedging needle ②.
2. When the lower looper is crossed with the needle, the clearance between them should be 0.05 to 0.1 mm.
3. To make adjustment, loosen setscrew ④ and move lower looper holder ③.

MO-2404 — 10.7 ~ 11.3 mm  
MO-2416 — 10.7 ~ 11.3 mm  
MO-2414 — 10.4 ~ 11.0 mm

Throat plate

Go back farthest



### ★ Upper looper

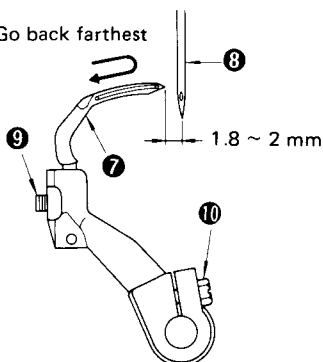
1. When upper looper ⑤ has advanced farthest, it should be distanced 10.4 to 11.0 mm from the overedging needle for MO-2414, and 10.7 to 11.3 mm for MO-2404 and MO-2416.
2. The clearance between upper looper ⑤ and lower looper ① when they are crossed each other should be 0.05 to 0.2 mm.
3. To make adjustment, loosen setscrew ⑥ and move the upper looper.

★ Use a proper upper looper according to the count of the needle used in accordance with the table shown below. When placing orders, specify the bracketed numbers□.

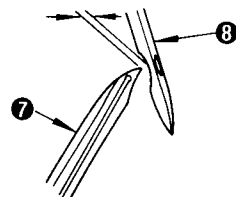
| Model                              | Numerals engraved on upper looper | Count of Needle |
|------------------------------------|-----------------------------------|-----------------|
| 1-Needle Overedger Safety Stitcher | 1188 [80]                         | #8 ~ #13 (#14)  |
|                                    | 1188 [81]                         | #14 ~ #20 (#13) |
|                                    | 1188 [83]                         | #21             |
| 2-Needle Overedger                 | 1188 [81]                         | #6 ~ #8 (#9)    |
|                                    | 1188 [83]                         | #9 ~ #16        |

\* Avoid using needles with the bracketed counts as much as possible.

Go back farthest



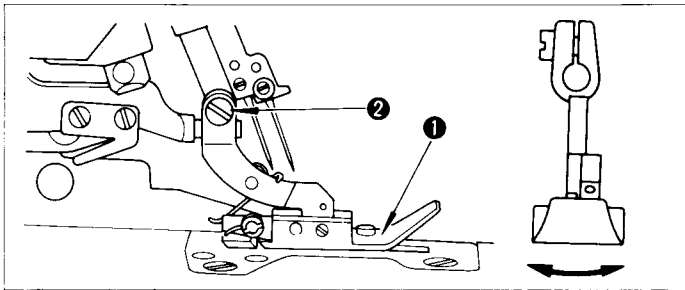
0.05 ~ 0.1 mm



### ★ Double-chain looper

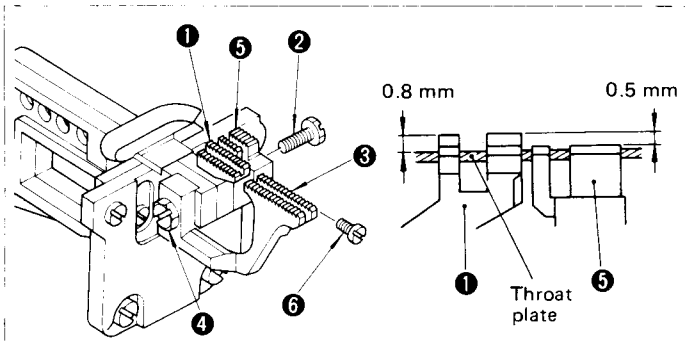
1. When double-chain looper ⑦ has gone back farthest, it should be distance 1.8 to 2 mm from double-chain needle ⑧.
2. The clearance between the double-chain looper and needle should be 0.05 to 0.1 mm when they are crossed each other.
3. To perform the adjustment, loosen set-screw ⑩ and move double-chain looper holder ⑨.

## 16. PRESSER FOOT AND FEED DOG



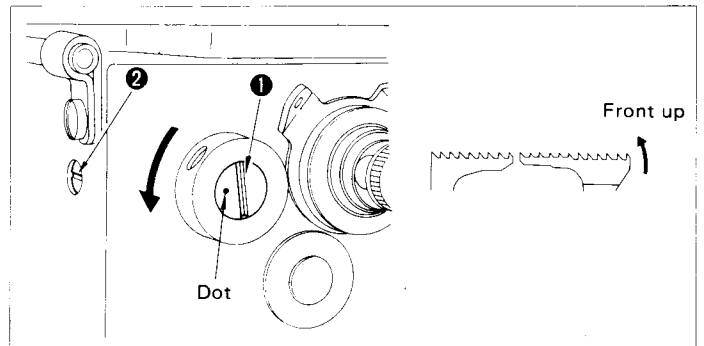
### ★ Contact of the presser foot with the throat plate top surface

Using adjust screw ②, perform adjustment so that the sole of the presser foot evenly comes in contact with the top surface of the throat plate when presser foot ① comes down.



### ★ Height of feed dog

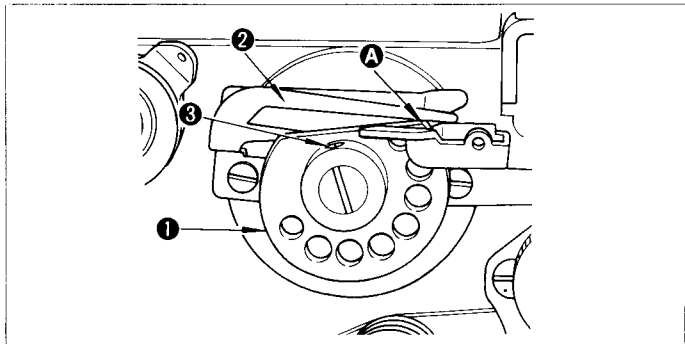
1. Feed dog ① is usually set so that its teeth protrude about 0.8 mm from the throat plate surface at the highest point in its trajectory. Increase the protrusion for heavy-weight materials or reduce it for light-weight materials.
2. Use setscrew ② to adjust the protrusion of the feed dog teeth.
3. Using setscrew ④, make adjustment so that differential feed dog ③ is level with the main feed dog.
4. Adjust the height of auxiliary feed dog ⑤ by setscrew ⑥ so that it is 0.5 mm lower than the main feed dog.



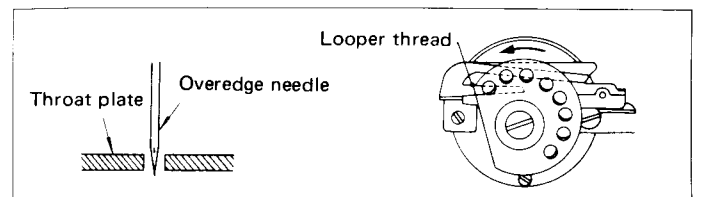
### ★ Inclination of feed dog

1. Loosen screw ②, and turn eccentric shaft ① in the arrowed direction to make the feed dog front up or turn it in the reverse direction to set the feed dog front down.
2. The feed dog should be levelled when the dot engraved on the eccentric shaft faces exactly to the left.

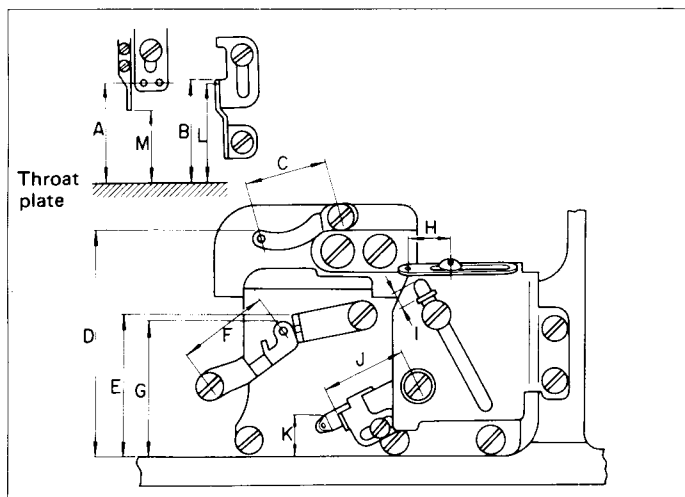
## 17. CHAIN LOOPER THREAD CAM(MO-2416)



Loosen setscrew ③, and adjust chain looper thread cam ① so that ① of the chain looper thread cam meets the bottom of looper thread cam pawl ② when the needle is at its highest position. Make sure that the chain looper thread cam releases the looper thread at the moment the needle point starts to go below the bottom of the throat plate under this condition.



## 18. THREAD GUIDE AND LOOPER THREAD TAKE-UP



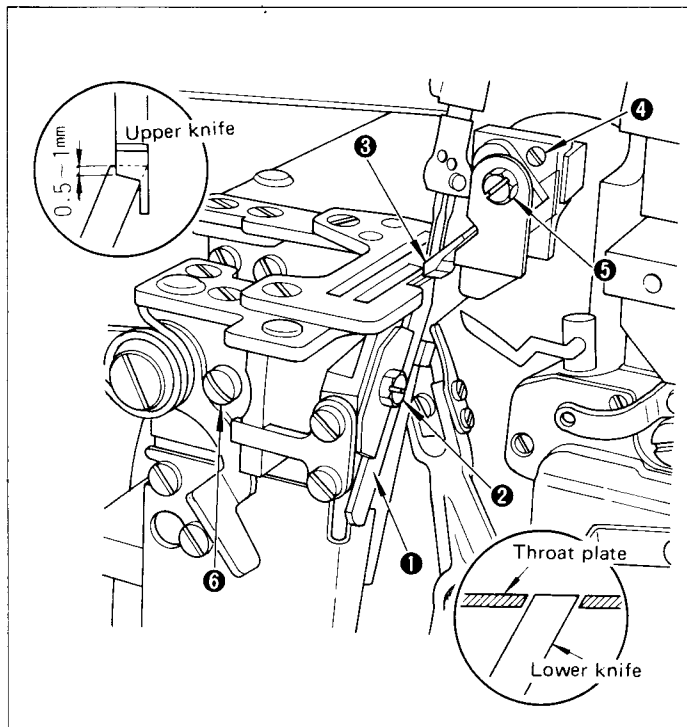
The table below shows the standard dimensions of the individual thread guides and looper thread take-ups when the upper looper has gone back farthest.

| Code | MO-2404<br>MO-2416<br>(Standard) |    | MO-2414<br>(Standard) |      | MO-2405<br>(Hemming<br>bottom) |      | MO-2404<br>(Soft chain) |      |
|------|----------------------------------|----|-----------------------|------|--------------------------------|------|-------------------------|------|
|      | G                                | W  | G                     | W    | G                              | W    | G                       | W    |
| A    | 74                               | ←  | ←                     | ←    | ←                              | ←    | 79.5                    | ←    |
| B    | 74                               | ←  | ←                     | ←    | ←                              | ←    | 79                      | ←    |
| C    | 22.5                             | ←  | ←                     | ←    | ←                              | ←    | ←                       | ←    |
| D    | 63.5                             | ←  | ←                     | ←    | ←                              | ←    | ←                       | ←    |
| E    | 40.5                             | ←  | ←                     | ←    | ←                              | ←    | ←                       | ←    |
| F    | 26                               | ←  | ←                     | ←    | ←                              | ←    | ←                       | ←    |
| G    | 37.5                             | 45 | 37.5                  | 45   | 37.5                           | 45   | 41                      | 47   |
| H    | 12                               | ←  | 13                    | 18.5 | 9.5                            | 12   | 13                      | 26.5 |
| I    | 6.5                              | ←  | 14                    | ←    | 24.5                           | 33.5 | 28.0                    | 33.5 |
| J    | 24                               | ←  | 23                    | ←    | 19                             | ←    | ←                       | ←    |
| K    | 14                               | ←  | ←                     | ←    | ←                              | ←    | ←                       | ←    |
| L    | 74                               | ←  | ←                     | ←    | ←                              | ←    | ←                       | ←    |
| M    | 63                               | ←  | ←                     | ←    | ←                              | ←    | ←                       | ←    |

G : General thread W : Wooly thread (Unit : mm)



## 19. KNIVES AND OVEREDGE WIDTH



### ★ Height of the lower knife

Loosen setscrew ② and adjust the height of lower knife ① so that its edge is flush with the throat plate surface.

### ★ Height of the upper knife

Loosen setscrews ④, ⑤ and perform adjustment so that upper knife ③ overlaps lower knife ① by 0.5 to 1 mm when the upper knife is at its lowest point.

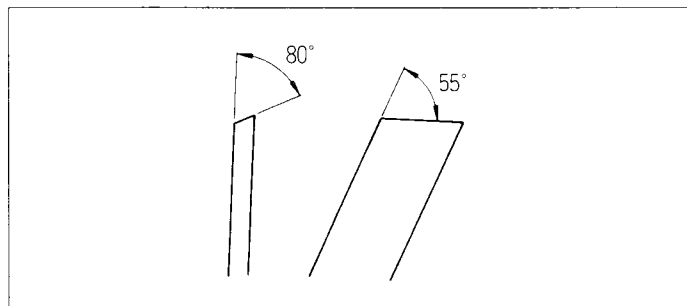
### ★ Overedge width

Overedge widths of 1.6 through 6.4 mm are provided by changing the parts or by using subclass models. (The overedge width will be slightly larger than the knife cut width.)

To change the overedge width:

1. Loosening setscrew ⑥, push lower knife ① to the left and fix it.
2. Loosen setscrew ⑤ and move upper knife ③ as required, then fix it.
3. Lower the upper knife to its lowest point and loosen setscrew ⑥. Tighten setscrew ⑥ when the lower knife comes in contact with the upper knife.

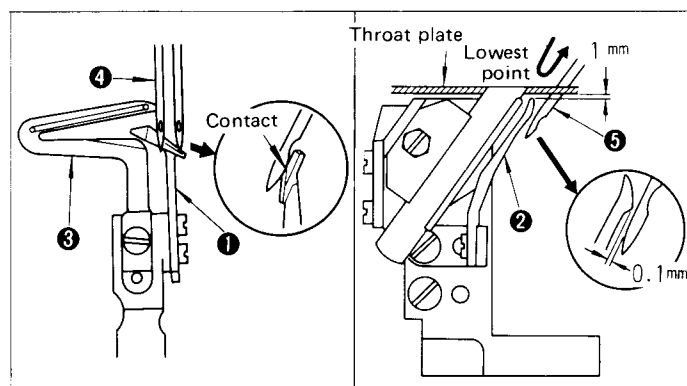
**(Caution)** Be sure to tighten screw ⑥ before operating machine.



### ★ Resharpening the lower knife

When the lower knife has become dull, resharpen it as shown in the figure left.

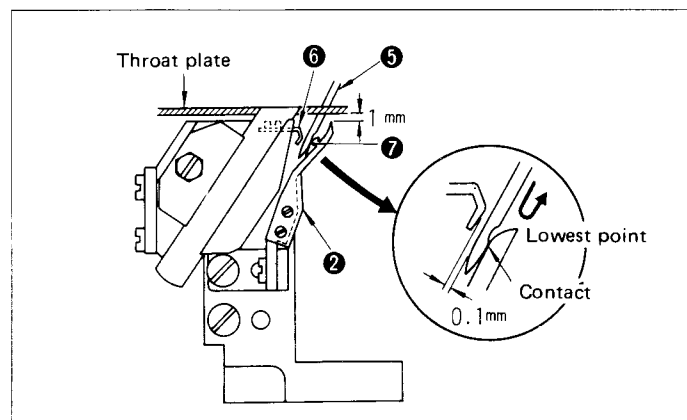
## 20. NEEDLE GUARD



### ★ For 1-Needle and 2-Needle Overedgers

An overedger is equipped with two needle guards ① and ②.

1. Position needle guard ① so that it lightly comes in contact with needle ④ when the blade point of lower looper ③ has reached the center of needle ④.
2. Position needle guard ② so that it is 1 mm lower than the bottom surface of the throat plate end is distanced 0.1 mm from needle ⑤ when the needle is at its lowest point.



### ★ For safety stitchers

A safety stitcher has four needle guards ①, ②, ⑥ and ⑦.

1. Position needle guards ① and ② in the same manner as the overedger explained above.
2. Position needle guard ⑦ so that it lightly comes in contact with needle ⑤, and position needle guard ⑥ so that it is distanced 0.1 mm from needle ⑤ when the needle is at its lowest point.

## 21. STITCH FAILURES AND CORRECTIVE MEASURES

| STITCH FAILURE                                                  | CAUSES                                                                                                                                                                                                                                                                                                   | CORRECTIVE MEASURES                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Needle breaking                                              | (1) Needle type is wrong.<br>(2) Needle count is not correct.<br>(3) Needle is not installed correctly.<br>(4) Needle is not straight.<br>(5) Needle-to-needle guard is inadequate.<br>(6) Needle-to-looper relation is inadequate.                                                                      | ○ Use a specified needle.<br>○ Use a needle size suitable to the thread gauge and type of fabrics.<br>○ Install the needle in the correct way (See 8).<br>○ Use a straight needle.<br>○ Correct the relation (See 20).<br>○ Correct the needle to looper relation (See 15).                                 |
| 2. Cloth is not cut                                             | (1) Position of the upper and lower knife is inadequate.<br>(2) Knife blade has worn out.                                                                                                                                                                                                                | ○ Adjust the knife position (See 19).<br>○ Sharpen the lower knife or renew the upper knife.                                                                                                                                                                                                                |
| 3. Stitch skipping                                              | (1) Needle-to-looper relation is wrong.<br>(2) Looper blade is blunt.<br>(3) Needle is threaded with S-twist (or left-hand twist) thread.<br>(4) Thread tension is wrong.<br>(5) Double chain looper thread tension is not enough.                                                                       | ○ Correct the needle-to-looper relation (See 15).<br>○ Correct the shape of the looper blade using an oilstone, or replace it.<br>○ Use a Z-twist (or right-hand twist) thread with the needle.<br>○ Adjust the thread tension (See 10).<br>○ Correct the position of the chain looper thread cam (See 17). |
| 4. Thread breaking                                              | (1) Quality of the thread is poor.<br>(2) Thread is too thick for the needle size.<br>(3) Needle is installed in a wrong way.<br>(4) Thread tension is too high.<br>(5) There is a scratch or bruise on the surface of needle, looper, throat plate or needle guard.                                     | ○ Use a thread of good quality.<br>○ Select a suitable needle or thread.<br>○ Install the needle correctly (See 8).<br>○ Adjust the thread tension (See 10).<br>○ Remove scratches and bruises using an oil-stone or buffing machine.                                                                       |
| 5. Double chain-off thread stitching are not correct. (MO-2416) | (1) Presser foot does not evenly act on the feed dog.<br>(2) Rear presser is shaking.<br>(3) Needle thread and looper thread tensions are not correct.<br>(4) Double chain looper is installed in a wrong way                                                                                            | ○ Correct the relation of the presser foot with the feed dog. (See 16).<br>○ Adjust the rear presser for smooth and steady motion.<br>○ Adjust the thread tension (See 10).<br>○ Correct the double chain looper (see 15).                                                                                  |
| 6. Puckering                                                    | (1) Needle is too thick.<br>(2) Thread tension is too high.<br>(3) Pressure applied by the presser foot is too high or too low.<br>(4) Feed dog comes up too much from the throat plate surface.<br>(5) Knife fails to cut the fabrics sharply.<br>(6) Differential feed mechanism is not set correctly. | ○ Select a suitable needle size for the thread and materials.<br>○ Adjust the thread tension.<br>○ Correct the presser foot pressure (See 11).<br>○ Lower the feed dog.<br>○ Sharpen the lower knife.<br>○ Correct the differential feed mechanism (See 13).                                                |
| 7. Irregular stitching                                          | (1) Thread is not supplied smoothly<br>(2) Thread tension is too low.<br>(3) Needle is blunt.<br>(4) Pressure applied by the presser foot is inadequate.<br>(5) Height of the feed dog is wrong.                                                                                                         | ○ Use smooth thread with even thickness or clean up the thread path.<br>○ Increase the thread tension.<br>○ Use a new needle.<br>○ Adjust the presser foot pressure (See 11).<br>○ Adjust the height of the feed dog (See 16).                                                                              |

## 22. SPECIFICATIONS

|                         | MO-2404                                                              | MO-2414               | MO-2416                        |
|-------------------------|----------------------------------------------------------------------|-----------------------|--------------------------------|
| Sewing speed (Max.)     | 6500 s.p.m.                                                          | 6500 s.p.m.           | 6500 s.p.m.                    |
| Stitch length           | 0.8 ~ 4 mm (1/64" ~ 5/32") (special model : up to 5 mm)              |                       | 1.5 ~ 4 mm (5 mm)              |
| Needle gauge            | —                                                                    | 1.6, 2.0, 2.4 mm      | 1.6, 2.0, 2.4, 3.2, 4.8, 6.8mm |
| Overedge width          | 1.6, 2.4, 3.2, 4.0, 4.8, 6.4mm                                       | 2.0, 3.2, 4.0, 4.8 mm | 3.2, 4.0, 4.8, 5.6, 6.4 mm     |
| Differential feed ratio | Gathering stitch 1:2 (Max. 1:4) Stretching stitch 1:0.7 (Max. 1:0.6) |                       |                                |
| Needle                  | DC x 27 (standard) (DC x 1 may be used)                              |                       |                                |
| Presser foot lift       | Max. 7.0 mm (9/32") (excluding some subclass models)                 |                       |                                |
| Lubricating oil         | JUKI New Defrix Oil No. 2                                            |                       |                                |



( Please do not hesitate to contact our distributors or agents  
in your area for further informations when necessary. )



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